

**REMEDIAL INVESTIGATION SAMPLING AND ANALYSIS PLAN
PART III--DATA MANAGEMENT PLAN
FOR THE TEST AREA NORTH GROUNDWATER OPERABLE UNIT
AT THE IDAHO NATIONAL ENGINEERING LABORATORY**

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**Idaho National Engineering Laboratory
EG&G Idaho, Inc.
Idaho Falls, Idaho 83415**

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ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirements
ARDC	Administrative Records and Document Control
ATSDR	Agency for Toxic Substance and Disease Registry
CCS	Contract Compliance Screening
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLP	Contract Lab Program
CRP	Community Relations Plan
DBA	Database Administrator
DMP	Data Management Plan
DOE	Department of Energy
EIRC	ERD Integrity Review Committee
EPA	Environmental Protection Agency
ERD	Environmental Restoration Department
ERIS	Environmental Restoration Information System
FDC	Field Data Coordinator
FS	feasibility study
FSP	Field Sampling Plan
HSP	Health and Safety Plan
IEDMS	Integrated and Environment Data Management System
INEL	Idaho National Engineering Laboratory
L&V	Limitations and Validation
PA	Preliminary Assessment
PHEA	Public Health and Environmental Assessments
QAPjP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
QC	quality control
RI	remedial investigation
RI/FS	remedial investigation/feasibility study
ROD	Record of Decision
SAP	Sampling and Analysis Plan
SI	Site Investigation
SMO	Sample Management Office
SOP	standard operating procedure
SOW	Statement of Work
TAN	Test Area North

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1. INTRODUCTION

This Data Management Plan (DMP) has been developed to ensure effective management of the significant amounts of information associated with the Test Area North (TAN) Groundwater remedial investigation/feasibility study (RI/FS) at the INEL.

The plan provides or references procedures and requirements necessary to develop a database of relevant information that can be readily accessible and accurately maintained. The plan describes the data flow process, data custodianship, and organizational and individual responsibilities associated with data management. It also provides project file and reporting requirements and identifies extensive database capability requirements to allow selective data sorting, analysis, formatting, and reporting.

The database configuration currently being developed will store past and future data associated with the geological, environmental, chemical, and radiological information for the Environmental Restoration Department (ERD), which is the organization responsible for the TAN Groundwater RI/FS. The database will also store data required to support the above information.

In Section 2, the data flow process and the associated individual responsibilities are discussed. Data quality and control objectives as they pertain to the database and data management are also outlined. The data flow process will follow ERD Program Directive (PD) 2.4 (EG&G Idaho, 1992), which describes the steps involved from the initial evaluation of data information and quality requirements through procedure specifications, data collection, validation, database entry and control, and reporting.

Section 3 identifies requirements for project files and describes the two major file systems--administrative and technical.

Section 4 describes data reduction, validation, and reporting requirements.

Management of technical data will be accomplished primarily with computer database systems. Section 5 describes computer database design and capabilities. The data will be controlled by taking advantage of existing databases and data processing systems at the INEL.

Data presentation and reporting requirements are presented in Section 6. The section includes a description of reports, information display techniques, and data and quality assurance presentation formats and requirements.

Data management requirements for analytical techniques are described in Section 7.

The implementation schedule for the activities associated with this DMP are presented in Section 8.

2. DATA FLOW PROCESS AND CUSTODIANSHIP

The flow of information within the Environmental Restoration Department will be controlled by the latest version of Program Directive 2.4 (see Section 9, References). This program directive will address the following topics:

- Identification of data requirements
- Identification of data objectives
- Data verification
- Data validation
- Data storage
- Data reporting.

2.1 FUNCTIONAL STRUCTURE AND INDIVIDUAL RESPONSIBILITIES

Responsibilities of individuals assigned to manage each of the functional areas in the data flow process are explained in the following paragraphs.

ERD Administrative Record and Document Control Technical Leader

The responsibilities of the ERD Administrative Record and Document Control (ARDC) Technical Leader are to (a) maintain all project and administrative record files for the TAN Groundwater RI/FS, including hard copy, microfiche, and auxiliary electronic information files (all files categorized into administrative and technical areas); (b) construct and maintain a filing index of all information, data, and documents included in the RI/FS project files; (c) locate, control, and secure all file information listed in the *ERD Quality Program Plan* (QPP-149), Appendix C, which is provided by the project managers; (d) control and document all releases of data from these files; and (e) ensure that modifications to the ERD administrative record system are approved by DOE-ID and are clearly documented.

IEDMS Database Administrator

The Integrated Environmental Data Management System (IEDMS) Database Administrator (DBA) provides database control for both the IEDMS and interim databases used for IEDMS activities. The DBA is responsible for processing analytical data for the TAN Groundwater RI/FS. Data processing includes electronic capture of the data, verification of the data, completeness reporting, and initial tabular presentation of the data. The DBA also controls data change requests, maintains security for the database, performs self assessments, and uploads data into the Environmental Restoration Information System (ERIS) database.

ERIS Database Administrator

The ERIS DBA provides database control for ERIS. The ERIS DBA is responsible for control, data change requests, and security for the ERIS database. The ERIS DBA is also responsible for database quality checks, audits, maintenance, and operations.

EIRC Chairman

The ERD Independent Review Committee (EIRC) Chairman will provide leadership for the EIRC. Responsibilities for the EIRC are listed in the *ERD Quality Program Plan* (QPP-149). Specific activities for the TAN Groundwater RI/FS will include coordinating technical review of documents produced during the RI/FS.

Project Data Quality Engineer

At the request of WAG manager or project manager, the ERD Quality Engineer ensures that: (a) all field sampling and data measurements are coordinated and conducted in accordance with the *ERD Quality Program Plan* (QPP-149) and the TAN Groundwater RI/FS sampling and analysis plan; (b) key individuals are assigned within each area of sampling and data collection to oversee and monitor the process and results of data collection; (c) all necessary sampling and data collection documents are prepared and maintained; and (d) all procedures for quality, control, and processing are followed. The

ERD Quality Engineer periodically audits performance of field and laboratory activities and systems used in TAN Groundwater RI/FS activities to ensure they conform to the *ERD Quality Program Plan* (QPP-149) and specific QAPjPs.

ERD Sample Management Office

The ERD Sample Management Office (SMO) is responsible for establishing TAN Groundwater RI/FS subcontracts for sample analyses with laboratories. The SMO ensures that data are produced in accordance with procedural and contractual requirements and monitors the laboratory's performance to ensure complete, accurate, and timely performance and results. The SMO receives TAN Groundwater RI/FS data from the Environmental Restoration Department Field Data Coordinator (ERD-FDC) and ensures that they are validated using SMO standard operating procedures (SOPs) and ERD PDs.

Project Data Presentation and Analyses Coordinator

Responsibilities of the Project Data Presentation and Analyses Coordinator are to identify and summarize all data presentation forms and formats used for official communication of raw data and summary results to agencies outside EG&G Idaho, to coordinate reporting formats so data are reported consistently, to present all results based on analytical manipulations of the raw data, and to review all presentations and reports before their release.

Project Modeling Results Coordinator

The Project Modeling Results Coordinator will ensure that adequate and appropriate documentation accompanies all modeling results data to be entered into a database and will coordinate all modeling results. This effort includes documentation of computer model revisions. The Modeling Results Coordinator will also ensure that all the necessary data are captured for modeling purposes, both in the field and laboratory.

Waste Area Group Managers/Project Managers

ERD WAG managers are responsible for implementing the data management guidance contained in this plan and the requirements contained in ERD PDs; however, responsibilities can be delegated to specific project managers, which makes them jointly responsible for data management. WAG managers and project managers are responsible for identifying and summarizing all data presentation forms and formats used to communicate raw data and summary results on the TAN Groundwater RI/FS to agencies outside EG&G Idaho. They ensure that reporting formats are coordinated so data are reported consistently, results are presented based on analytical manipulations of the raw data, and presentations and reports are reviewed before their release.

2.2 QUALITY ASSURANCE/CONTROL OBJECTIVES

The data quality assurance and control objectives of this plan are primarily concerned with maintaining complete, accurate, and well documented information. Hard copy, electronic, microfiche, and optical disk copy document files will be maintained so ERD documentation is current and complete and all modifications and revisions have been recorded. A key information user's list will be maintained, and copies of all revisions will be distributed to information users.

Similar controls will be performed for the electronic data files (database files). QA and control requirements during measurement, sampling, control, and analyses are identified in the ERD Quality Program Plan (QPP 149), and the applicable Quality Assurance Project Plan. QA/QC functions of data validation will be documented in the SMO SOPs. The ERD SMO will receive the data from the ARDC-FDC, document any method nonconformance utilizing the SMO SOPs, and assign data qualifier flags to indicate limitations on the usability of the data. Once the data have been entered into the database, database management, maintenance, and operation procedures will specify the audit and check functions to be performed to ensure that the data have been correctly and completely entered, that data loss or destruction does not occur, that changes do not occur outside established change control, and that data security is controlled.

3. PROJECT FILES

Project files will consist of hard copy, microfiche, or optical disk copies of field logs, correspondence, reports, documents, measurements, and sample analysis data. In addition to these files, an electronic database will be used to store, access, manipulate, format, and present data, documentation, reports, and analytical results. The electronic records will be cross-referenced to microfiche/optical disk records as deemed necessary. The ERD ARDC Technical Leader will oversee and coordinate the project files activity.

ERD project hard copy files will be divided into two major categories-- administrative and technical. A file identification and numbering index will be established and updated as needed to provide ready access to filed information. The ERD ARDC Technical Leader will assign file identification numbers and maintain adequate storage facilities with security and control sufficient to protect against document loss or unauthorized access. A project file will be maintained as a measure of document control to ensure that all project documents are readily accessible and accounted for upon project completion.

Management of electronically stored data is discussed in detail in Section 4.

Two separate distinct administrative records will be maintained for the TAN Groundwater RI/FS. A comprehensive administrative record, which includes all documents, correspondence, data, and other pertinent information generated, will be maintained by ARDC. Another administrative record, referred to as the RI/FS administrative record, will also be maintained by ARDC. The RI/FS record is required pursuant to Section 113 of CERCLA to facilitate public participation in the RI/FS process (EPA, 1988).

The information included in the RI/FS administrative record will essentially be a subset of the information contained in the comprehensive administrative record. While the purpose of the comprehensive record is to document all administrative and technical information generated at TAN, the purpose of the RI/FS record is to document only that information considered or

relied upon in selecting a remedy for the site. Therefore, certain administrative documents such as state quarterly reports, site-specific contracts, procurement packages, audit reports, etc., will not be included in the RI/FS record. Table 3-1 identifies the types of information that will be included in the RI/FS record, as appropriate. As information pertaining to RI/FS activities at TAN is generated or received, it will be reviewed by the TAN WAG-1 Manager or TAN Groundwater RI/FS Project Manager to determine its eligibility as RI/FS administrative record material. The TAN WAG Manager or Project Manager will notify the ARDC Manager of any material that has been designated for the RI/FS record. The ARDC Manager will be responsible for maintaining and updating both the comprehensive and RI/FS administrative records for TAN.

Table 3-1. RI/FS administrative record index - outline

1. SITE IDENTIFICATION

- 1.01 Notification/Site Inspection Reports
- 1.02 Preliminary Assessment (PA) Reports
- 1.03 Site Investigation (SI) Reports
- 1.04 Incident Report
- 1.05 Hazard Ranking System
- 1.06 Background Information

2. ENFORCEMENT

- 2.01 Enforcement History
- 2.02 Notice Letters
- 2.03 Administrative Orders
- 2.04 Consent Decrees
- 2.05 Affidavits

3. REMOVAL RESPONSE

- 3.01 Sampling and Analysis Plans
- 3.02 Sampling and Analysis Data/Chain of Custody Forms
- 3.03 Action Memorandum
- 3.04 Amendments to Action Memorandum
- 3.05 Status Reports

4. RI/FS PLANNING

- 4.01 Work Plans
- 4.02 Quality Assurance Project Plans (QAPjPs)
- 4.03 Field Sampling Plans (FSPs)
- 4.04 Health and Safety Plan (HSP)
- 4.05 Sampling and Analysis Data/Chain of Custody Forms
- 4.06 Memorandum/Reports
- 4.07 Review Comments
- 4.08 Department of Energy (DOE) Response to Comments

5. APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARs)

- 5.01 ARARs Analyses
- 5.02 Correspondence

6. REMEDIAL INVESTIGATION (RI) REPORTS

- 6.01 RI Reports
- 6.02 Review Comments
- 6.03 DOE Response to Comments

Table 3-1. (continued)

- 7. FEASIBILITY STUDY (FS) REPORTS
 - 7.01 DOE Reports
- 8. PROPOSED PLAN
 - 8.01 Supplements and Revisions to the Proposed Plan
- 9. RECORD OF DECISION (ROD)
 - 9.01 Responsiveness Summary
 - 9.02 Late Comments
 - 9.03 Amendments to the ROD
 - 9.04 Explanation of Significant Differences
- 10. PUBLIC HEALTH AND ENVIRONMENTAL ASSESSMENTS (PHEA)
 - 10.01 Agency for Toxic Substance and Disease Registry (ATSDR) Health Assessments
 - 10.02 DOE PHEAs
 - 10.03 Toxicological Profiles
- 11. NATURAL RESOURCE TRUSTEES
 - 11.01 Notices Issued
 - 11.02 Findings of Fact
 - 11.03 Reports
- 12. CORRESPONDENCE
 - 12.01 DOE
 - 12.02 U.S. Environmental Protection Agency (EPA)
 - 12.03 State
 - 12.04 Interagency
 - 12.05 Interest Groups/Advisory Committees
 - 12.06 General
- 13. PUBLIC PARTICIPATION
 - 13.01 Community Relations Plan (CRP)
 - 13.02 Public Notice(s) (Availability of the Administrative Record File and Proposed Plan, Public Meetings)
 - 13.03 Public Meeting Transcripts
 - 13.04 Documentation of Other Public Meetings

Table 3-1. (continued)

14. TECHNICAL SOURCES AND GUIDANCE DOCUMENTS

- 14.01 DOE Guidance
- 14.02 EPA Guidance
- 14.03 State Guidance
- 14.04 Technical Sources

15. GENERAL REFERENCE MATERIALS

16. ADMINISTRATIVE RECORDS

- 16.01 Administrative Record Comments
-

4. DATA REDUCTION, VALIDATION, VERIFICATION AND REPORTING

4.1 DATA REDUCTION AND REPORTING

Data reduction refers to computations and calculations performed on the analytical data. This includes computing summary statistics, standard errors, confidence limits, tests of hypothesis relative to the parameters, and model validation. Standard equations and statistically acceptable procedures will be used. When appropriate, data will be reported with statistically supported limits of uncertainty to indicate limitations on the use of the data. All data, when reported, will be rounded to the number of significant figures consistent with the confidence limits. Confidence limits will be justified by the accuracy and precision of the sampling measurement and the analytical method.

Laboratory data reduction will be addressed in the TAN project-specific analytical statements of work (SOW) issued to the analytical laboratory(s). All bench chemists will document sample preparation activities in a bound laboratory notebook or on bench sheets, which will serve as one of the primary records for subsequent data reduction. Final data reduction of analyses performed will be the responsibility of the individual compiling the final report. Results from each data collection activity will be reported in consistent units throughout each task. When applicable, as when presenting data on contaminant concentrations relative to the Resource Conservation and Recovery Act toxicity characteristic, any applicable state or federal regulatory limits will be presented with the analytical data.

Field data reporting procedures and formats are specified in the Field Sampling Plan portion of the Sampling and Analysis Plan (SAP). Laboratory data reporting will follow the procedures and format specified in the TAN project-specific analytical SOW. Results and quality control (QC) data for each analysis will be transcribed onto analytical reporting forms specific to the particular analysis. For most of these analyses, these forms will be provided in the analytical SOW. All data will be checked for accuracy and precision at the bench and instrument operator/analyst level and the laboratory manager's level before submitting the data package to EG&G Idaho.

4.2 DATA FLOW PROCESS

The TAN analytical SOWs will specify information and guidance specific to the samples to be analyzed and data reporting forms to be used. Separate SOWs for chemical, radiological, and geological property analyses will be prepared and have separate reporting requirements.

The data flow process is described in the latest version of ERD PD 2.4. The process begins when an SAP database is developed for a project. After completion of the SAP database, the sample tracking system is "populated" with sample numbers of the samples planned for collection. Sample labels and tags (when requested) are printed by data management personnel using this database. After sampling, selected field data will be captured by data management for producing summary tables of field and analytical data.

Laboratory data packages will be received from the analytical laboratory in triplicate. When the ARDC-FDC receives a data package from the laboratory, the sample tracking system is updated. The sample tracking system tracks samples by EG&G Idaho sample number and analysis type. If the data package requires Level A or B validation, as specified in SMO-SOP-12.1.1, one copy of the data package is transmitted to the SMO. A second copy of the package is transmitted to the IEDMS Database Administrator, and the third copy of the package is kept on file at the ARDC. The SMO performs method validation of the data to either Level A or B concurrently with data entry in the IEDMS. The level of method validation required is specified in the Quality Assurance Project Plan (QAPjP). If only a percentage of the data are to be validated to either Level A or B, this is also specified in the QAPjP. For all data that are not validated to either Level A or B, the ARDC-FDC forwards the data package only to the IEDMS Database Administrator for Level C processing.

When IEDMS data management personnel receive a data package, the first step is to prepare the package for data entry via computer programs, followed by data entry with automated error checks of the data. The data management staff decides if the package has sufficient completeness and accuracy for entry into the data management system (IEDMS) and reports to the Project Manager. The process often results in a need to procure additional data or

clarification from the laboratory that performed the analyses prior to entering the data. For example, a data package cannot be entered with the proper linkage maintained for records if sample numbers are used inconsistently throughout the data package. Once the package is deemed adequate, it is then entered into the IEDMS.

Concurrent with data entry, an automated routine is invoked that performs a set of checks on the data as part of the data verification and validation process. A listing of suspect data entries (errors) is printed to an output file. Then an attempt is made to resolve each error. First, a check is made to determine if the error resulted from data entry. Other attempts are made to resolve the errors, and when the effort is successful, the data forms and databases are modified to reflect any changes. A listing of the residual set of errors is made, and each error is highlighted on the applicable data form. The data entry clerk visually verifies the data through comparison of data on the original data forms and data on electronically produced forms, the latter originating from the database created in the data entry process. For data packages generated using Environmental Protection Agency Contract Lab Program (CLP) protocols, the data are evaluated for adherence to the specific CLP SOW using a set of Contract Compliance Screening (CCS) procedures. The CCS procedures evaluate the data for completeness and technical compliance to the CLP SOW. When desired, for inclusion in reports, the IEDMS can generate QC tables, which provide an efficient, easily readable tabular presentation of all data included on the complete set of data forms.

The SMO ensures that the method validation is performed using the SMO SOPs. The method validation chemists attempt to resolve deficiencies identified during the method validation process. The chemist reviews the raw data to assess whether or not the analysis was performed per the specifications in the analytical method and that data on the reporting forms are consistent with the raw data. All laboratory data will be cross-referenced to the appropriate trip blank, field blank, rinsate (equipment blank), method blank, field duplicate or replicate, matrix spike, and matrix spike duplicate. In addition, all pertinent data (date of sample collection, date received by the laboratory, and date analyzed or prepared for analysis) for each sample will be referenced against their respective holding times.

After a chemist's evaluation, a Data Limitations and Validation (L&V) report is produced. The data forms with data validation flags are then resubmitted to the IEDMS staff. The L&V report is written after a thorough examination of the data. The L&V report will state if the data are consistent with the analytical level requested in the SOW, explain any limitations on use of the data, and define any flags used in the method validation/qualification process. The L&V report together with the QC tables (when requested) will allow the customer effective use of data. At completion of the method validation process, validated data are uploaded into the ERIS. The ERIS is discussed in Section 5.

4.3 DATA VALIDATION AND VERIFICATION

All analytical data will be validated as described in the QAPjP. At completion of the RI, the analytical data will be verified to ensure that the precision, accuracy, representativeness, completeness, and comparability (PARCC) parameters were met.

5. COMPUTER DATABASE

The IEDMS is a PC-based system that can support environmental investigations from their design stage and throughout the duration of the study. The system integrates data originating from the Sampling and Analysis Plan, field data, and analytical findings. The IEDMS automated features include:

- Sampling guidance forms
- Barcoded sample labels and tags
- Field and analytical forms reproduction
- Sample tracking
- Analytical data qualification
- Completeness reports
- Results and QC data reporting.

The IEDMS has extensive automated capabilities that support a systematic and comprehensive process for performing quality assessment of analytical data. One product of this process is a unique and extremely useful tabular presentation of the data. This table contains the complete set of results and QC data included on the data reporting forms while presenting the information consistent with the chronology in which the analysis was performed. The IEDMS data flow process is illustrated in Figure 5-1. The ERIS computer database system has been developed to provide storage, control, management, and analysis of samples, measurements, and analytical results pertaining primarily to the site, contaminants, and the environment. The database is fully relational, providing electronic control of and access to all site-qualified data in several data subject areas. These areas are radiological, environmental, geological, and chemical data subject areas. The system also provides useful management and analytical software processing tools to allow data summarization and analytical evaluations with tabular and graphical displays. Development of the database system to full performance capabilities will be accomplished over an extended timeframe. However, interim management, control, analysis, etc., of the data can be accomplished without compromise to data quality, control, and security. Existing electronic and hard copy database systems will be used. Database description, quality, control, and management are described in the following documents:

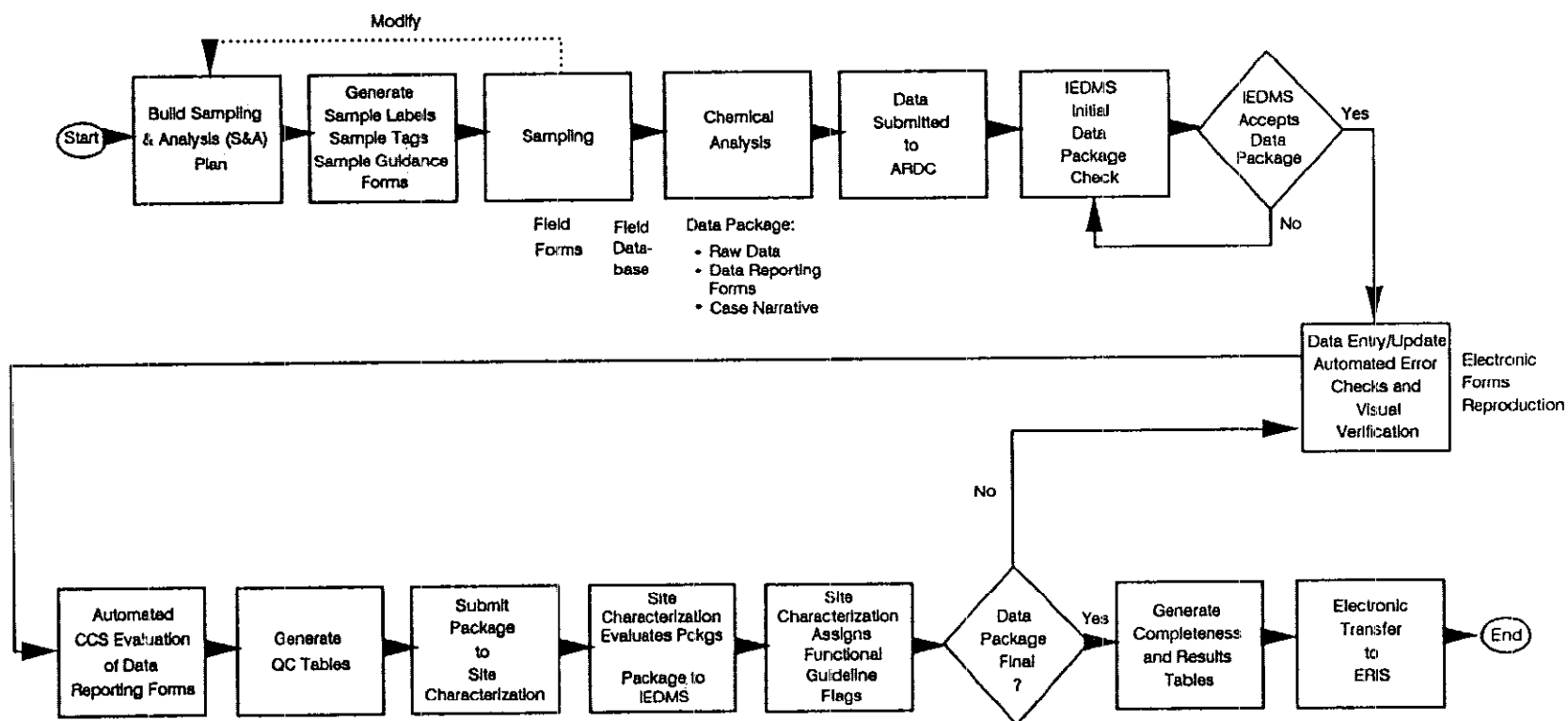


Figure 5-1. Integrated chemical data flow process.

- White, L. J., *General Requirements for the Environmental Restoration Information System*, EGG-WM-8615, 1989.
- White, L. J., *System Quality Assurance Plan for ERIS*, EGG-WM-9760, 1991.
- White, L. J., *Systems Configuration Management Plan*, EGG-WM-9759, 1991.

6. DATA PRESENTATION

6.1 TABULAR AND GRAPHICAL DISPLAYS

A large amount of data has been generated from previous investigations at TAN. Large quantities of additional data (including elements pertinent to assessing the magnitude and extent of contamination and the risks posed by the contamination) will be collected in the course of the TAN RI/FS and will require reporting, sorting, manipulation, and analysis.

To complete the requisite analyses and data manipulation and to report the information and conclusions in a clear and logical format, a number of tabular and graphical displays will be used. This manipulation of the data is necessary to assess information trends, identify adequacy of the data, identify missing information that needs to be collected, select sampling locations, and visually represent site conditions or data.

Data representations in tabular format are expected to be, at a minimum:

- Unsorted (raw) data (when applicable)
- Results for each medium or for each constituent monitored
- Data sorted by potential stratification factors (e.g., location, soil layer, topography)
- Summary data.

Site information anticipated to be listed in tables includes:

- Water table elevations
- Site flora and fauna
- Pump test data.

Analytical data anticipated to be sorted and displayed in tables include:

- Lists of organic constituents of concern and pertinent regulatory concentration limitations

- Sorted sampling data results by compound within each medium and with depth in each medium
- Comparisons of background concentrations, sampling data, and regulatory limitations
- Statistical manipulations of sampling results
- Input data for predictive transport model
- Output results for predictive transport model
- Comparison of predicted results with measured concentrations
- Analytical QC data.

Data representations in graphical formats are anticipated to be, at a minimum:

- Sampling locations
- Boundaries of sampling areas and areas for which more data are required
- Levels of contamination at each sampling location and the geographic extent of contamination
- Changes in concentrations in relation to distance from constituent source, time, depth, or other parameters to indicate extent and attenuation
- Potential receptors.

Site features anticipated to be displayed graphically are the following:

- Site layout
- Sampling locations (diagrams of well and bore hole locations, maps of other sampling locations)
- Stratigraphy (profiles and fence diagrams)
- Isopach maps of interbeds and surface soil
- Water level elevations
- Groundwater flow nets
- Population plot

- Well locations on and off the INEL Site
- Features affecting intramedia and intermedia transport.

Graphic displays of the extent of contamination are expected to include:

- Geographical (area) extent of contamination
- Isopleth maps of individual contaminants in each medium (soil, vadose zone, aquifer)
- Vertical distribution of each contaminant
- Predicted concentrations of contaminants (changes over time at given locations)
- Predicted spread of contaminants over time.

Two-dimensional or three-dimensional diagrams of specific features will be used in graphical displays. The exact selection will be determined at the time of data compilation and assessment.

6.2 PROJECT REPORTING REQUIREMENTS

Reports and documentation are required to keep project personnel and regulatory agencies informed of project status and results. These reports will be filed by ARDC and will be available as file copies and also in the database. Report generation shall be as required to support a given project. Results of all investigations necessary to (a) characterize the TAN Groundwater RI/FS, (b) define the source of its contamination, (c) define the degree and extent of contamination, and (d) identify actual or potential receptors will be documented in reports.

6.3 SYNTHESIZED DATA PRESENTATION

Synthesized data will be carefully delineated from sample data. To accomplish this, all synthesized data will be marked accordingly, and the equations or algorithms used will be documented or referenced.

6.4 QUALITY ASSURANCE OF DATA PRESENTATION

Analytical data presented will contain both the data quality level and the data limitations as identified during validation.

7. DATA ANALYSIS TECHNIQUES

All data analysis techniques will be documented in detail with appropriate references.

8. IMPLEMENTATION SCHEDULE

Scheduling for the data management activities has not yet been completed. However, the following activities will be completed by March 1992: (a) the scope of existing data will be defined, and validation of existing data will be completed, (b) the project files will be established and functional as specified, and (c) the interim database will be operational.

9. REFERENCES

- EG&G Idaho, 1989, *Environmental Restoration Program BWP Data Qualification Manual*, EGG-WM-8488, EG&G Idaho, Inc., Idaho Falls, ID, 1989.
- EG&G Idaho, 1992, Program Directives, Environmental Restoration Department, EG&G Idaho, Inc., Idaho Falls, ID, 1992.
- EPA (Environmental Protection Agency), *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA*, Interim Final, EPA/540/6-89/004, OSWER Directive 9355.3-0.1, Office of Emergency and Remedial Response, Washington, D.C., October 1988.